Quarterly Report

Covering January 1, 2007 to March 31, 2007

Submitted April 20, 2007

Project Title

Warm Water Species Fish Passage in Eastern Montana Culverts

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Introduction

This progress report covers work completed between January 1, 2007 and March 31, 2007. Work on the project during this period has been entirely devoted to data analysis and preparation of the final report for the project.

Project Objective

Culverts are a common and often the most cost effective means of providing transportation intersections with naturally occurring streams or rivers. Fish passage and fish habitat considerations are now typical components of the planning and design of waterway crossings. Many culverts in Montana span streams that support diverse fisheries. The health of these fisheries is an essential element of a recreational industry that draws hundreds of thousands of visitors to Montana annually. Additionally, there is growing recognition of the value of native Montana species, some of which are considered ‘species of special concern’ in the state. In recent years these concerns have

become apparent for warm water species in low gradient, high sediment bearing, intermittently flowing streams that are typical of eastern Montana.

Transportation system planners, designers and managers recognize that fish passage through Montana's culverts is a concern. However, there is much contention concerning the impact that a culvert can have on a fishery. Recent basin-wide studies of various trout species that we conducted in western Montana indicate that the tools that some planners and designers promote for forecasting fish passage concerns may be overly conservative. Which species, life stages, and how many individuals must have fish passage access for how long, are questions that are often brought forward during discussions on the design and retrofitting of culverts to accommodate fish passage concerns. ***The problem is that for warm water fish species and settings in eastern Montana, the timing and number of fish that must pass a culvert to maintain viable species diversity in the watershed is unknown, and the physiologic abilities of these species relative to such common fish passage questions are often unknown.***

Progress

Data analysis and preparation of the final reports for the project are underway. Rather than include incomplete subsets of the results here, it is appropriate to delay presentation of results until the final report. It is anticipated that a draft of the final report will be distributed to reviewers in early May 2007, in anticipation of the June 30, 2007 completion date.

One reviewer of the previous quarterly report for this project (October – December 2006) provided much appreciated comments. Brief responses are provided here. First, all physical attributes of the streambed and culvert in the existing condition were recoded early in the project and will be included in the final report. Second, the perennial streams studied in this project were chosen intentionally to provide the maximum opportunity to foster the learning process of studying fish passage in this setting. The streams chosen are, for the most part, artificially perennial as influenced by diverted irrigation water return flows. Nearly all of what was learned in this project is transferable to an intermittent stream in the same setting if the hydrology of that stream were known or could be forecasted and the timing of critical fish mobility periods were known or could be forecasted. Concerns of stream hydrology probably point out the need for continuing studies more than anything. These and many other issues will be discussed in more detail in the final report.

Budget

Expenditures for this cycle are largely attributable to graduate student stipends. The planned and actual expenditures appear to deviate, but only because of the timing for which faculty stipends are billed. Faculty stipends were, and will be, distributed in the months of January 2007 to June 2007. These expenditures are encumbered but not yet posted. They will be posted to the appropriate months soon, probably in late April, and

will be reflected as monthly expenditures retroactively. This is intentional because faculty stipends are the easiest budget category for MSU to supplement if there were unplanned expenditures in other budgetary categories that must be made up for in order to balance the books at the end of the project. All costs to the project have either been expended or encumbered, and when encumbrances are posted the expenditures at the end of the project equal the grant amount.